



AN ERA OF INVITRO FERTILITY AND PCOS –CAUSE AND NEED

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ABSTRACT

The subject is highlighted on February 28 2017 from times of India in the title of Kerala sees rise in fertility clinics which made me to write this article to recollect. In the past 5 years, the number of IVF clinics in India has doubled, with a quick count showing that from 20 clinics in 2012 to 41 in 2017. Fertility specialists have suggested that the increase is not due to a decrease in infertility among couples, but rather due to late marriages and delays in conceiving. On average, 5000 couples in Kerala undergo IVF treatment at these centres each year, with 1000-1500 babies being born in Kerala, according to the Indian Society for Assisted Reproduction. Although IVF is a costly option, it is now becoming more accepted among Malayalis. The cost of IVF treatment in Kerala ranges from Rs 1.25-2 lakh, with a success rate of 30-35%. Five years ago, the majority of IVF patients were aged 32, but now more than 50% are under 30. Repeat patients have increased, with 20% returning for the second baby through IVF. Natural conception is no longer possible due to PCOS. By considering the above fact it is our duty to work for future healthy generation in order to have alternate and healthy life style to eradicate PCOS. Hence the article is designed the relationship between IVF and PCOS and need of an alternative medicine.

KEYWORDS: Pcos, ivf, herbal, ziziphus.

INTRODUCTION

Infertility is an international condition that affects people around the world. The causes and severity of infertility vary from place to place and from place of residence to place of income. Statistics show that 60-80 million couples worldwide experience infertilities every year.^[1] According to ICMART and WHO definitions, "infertility" refers to a disease of reproductive systems that results in failure to conceive after at least 12 months of regular unprotected sex. Women who suffer from female infertility are most likely to have problems with their fallopian tubes, uterus, menstrual cycle disorders, sexual dysfunctions, or ovarian failure. Polycystic Ovarian Syndrome (PCOS) is a condition in which the ovaries are unable to produce an egg regularly or do not produce a healthy egg at all. The true number of women suffering from PCOS around the world is not known due to differences in diagnostic criteria and lack of data from many geographic regions. However, based on the use of the 'Rotterdam criteria', it is estimated that 15 to 20% of women suffer from PCOS.^[2] PCOS is a common endocrine disorder among women of reproductive age, characterized by hyperandrogenism, chronic oligo/anovulation, and polycystic ovaries. This condition can result in infertility, irregular menstruation, acne, and hirsutism. Obesity and insulin resistance are major

factors contributing to PCOS. Elevated insulin levels may trigger increased testosterone production in the ovaries, affecting ovulation. Lifestyle adjustments such as exercise and a low carbohydrate diet can help manage infertility issues related to polycystic ovarian disease by reducing insulin levels and promoting weight loss. Abiraterone acetate can regulate androgen levels in women with 21-hydroxylase deficiency, but its 17-hydroxylase inhibitory effect may lead to excess mineralocorticoid due to ACTH stimulation in individuals with intact 21-hydroxylase activity.^[3] Abiraterone acetate usage in women with PCOS may necessitate extra glucocorticoid supplementation, reliable contraception, and potentially estrogen therapy to prevent hypoestrogenism. Consequently, it may not be an ideal pharmaceutical treatment for most patients with functional androgen excess. Alternatives for PCOS patients include clomifene citrate as an initial therapy to induce ovulation. A secondary treatment option is laparoscopic ovarian drilling (LOD), a surgical procedure that can help restore ovulation. In vitro fertilization (IVF) is another choice if both initial and secondary therapies are ineffective. PCOS women undergoing IVF face considerable risks of ovarian hyperstimulation syndrome, as well as an increased likelihood of developing gestational diabetes, pregnancy-

induced hypertension, and pre-eclampsia. The success rate of current PCOS treatment options is diminished due to side effects and inefficacy in numerous cases. Given the mentioned risk factors, many PCOS patients opt for herbal supplements alongside exercise and a reduced carbohydrate diet due to their milder side effects and superior effectiveness. The treatment options using herbal remedies for PCOS are currently limited and lack clinical evidence.^[4]

Treatment option

Currently, there is no cure for PCOS, but symptoms can be managed with lifestyle changes and medications. Increasing daily activity, combined with a high-fiber, low-sugar diet that includes plenty of vegetables, whole grains, and fruits, will help reduce excess weight and maintain a healthy waist.^[5] Additionally, avoid or reduce consumption of processed foods, trans fats, and saturated fats help maintain stable blood sugar levels.^[6] Consider consulting a nutritionist or dietitian. Additionally, quitting smoking (or never starting) will also improve overall health. In addition to these lifestyle changes, there are medications that can help in the management of PCOS, which must be adapted to the risk profile, wishes and treatment goals of each individual^[7] Low-androgen oral contraceptives containing drospirenone or progestin-only pills, known as mini-pills^[8] an inositol supplement (myo-inositol, D-chiro-inositol or a combination of both), which can help control the symptoms of PCOS, such as hirsutism, acne, difficulty conceiving, etc.^[9] Metformin Lipid-lowering agents for women with lipid abnormalities.^[10]

Challenges

As an average middle class Indian woman who cannot afford the cost of treatment, most of her family members today are nuclear families due to the rapid global culture changing their way of life. Lifestyle modification is impossible in practicing, as is regular consumption of healthy foods, physical exercise, and diets aimed at reducing body weight and increasing metabolic function.

Perfect remedy

A perfect remedy for PCOS is to consume *Ziziphus Mauritiana* in the form of an infusion in decoction, powder or raw. The leaves, fruits, and seeds of *Z. lotus* have been successfully tested to treat polycystic ovary syndrome; *Ziziphus mauritiana* leaves normalize hormonal profile and total Cholesterol in rats with polycystic ovary syndrome.^[4] This plant containing nutrients with great potential was used by the ancient people of India and is easily available. Some important traditional uses of *ziziphus* are as follows.

Ziziphus is a botanical genus comprising approximately 40 species of thorny shrubs and small trees in the family Rhamnaceae. These plants are found in warm temperate and subtropical regions around the world. The leaves are entire, alternate and characterized by three prominent basal veins. They are typically 2 to 7 cm (0.79 to 2.8 in)

long. While some species are deciduous, others retain their leaves all year round, always remaining green. The flowers are greenish-yellow, small and may not be very visible. The fruit is an edible drupe that varies in colour from yellow-brown to red and black. The fruit shape can be globular or oblong, with a length ranging from 1 to 5 cm (0.39 to 2.0 in). The fruit is known for its sweetness and sweetness, with a texture and flavour reminiscent of a date.^[11,12,13,14] Jujube is widely recognized for its nutritional and nutraceutical values, making it an exceptional source biologically active compounds. For centuries, dried jujubes have been used as foods, food additives, and flavourings, due to their remarkable nutritional value.^[15] Jujubes are frequently processed into various forms, such as paste, puree, syrup, and confectionery, which are consumed for their benefits. Potential for improving digestion and maintaining general health.^[16,18] Jujube trees are adapted to tropical and subtropical regions around the world. There are two important cultivated varieties of jujube: *Ziziphus mauritiana* (commonly called ber or Indian jujube) and *Ziziphus jujuba* Mill (called Chinese jujube).^[19,20] Indian jujube is not only a nutritious fruit, it also has properties medicinal.^[21] It is a species of tropical fruit tree with high economic value due to its medicinal and nutritional properties, its use as livestock fodder and its role in environmental protection.^[20,22] The fruit is very nutritious and contains a significant amount of vitamins. C. It is commonly consumed in various forms, including raw, pickled, or as an ingredient in drinks. It is considered the second most nutritious fruit after guava and much richer in vitamin C than citrus fruits or apples. Ripe fruits can be sun-dried and powdered for off-season use, and slightly unripe fruits can be candied by pricking them and soaking them in saline. In addition to being consumed fresh, the fruit is consumed in other forms, such as candied, dried, and pickled, in the form of juice or even in the form of beer butter.^[23]

Traditional uses of *ziziphus mauritiana*

It is used as a sedative and against cancer.^[24] Additionally, it exhibits notable healing properties and has demonstrated potential effectiveness against asthma.^[25] The fruits, seeds and leaves of this plant have been found to have an antioxidant activity.^[26,28] reported that extracts derived from the fruits, leaves and seeds of *Z. mauritiana* exhibit antioxidant activity.^[27,29,31] In contrast, the bark and pulp of the plant exhibit cytotoxic effects against several cancer cell lines.^[31] Traditionally. Plants of the genus *Ziziphus* have been widely used as medicinal remedies to treat various bodily ailments and disorders. These include breathing and chest problems, inflammation of the mouth and gums, pimples and scabies. Additionally, reports indicate that the leaves of *Ziziphus* species are effective in whitening the skin of the neck and face and have been used to address problems related to hair growth.^[32,33] The roots of *Ziziphus* species are recognized for their distinctive bitter taste and have a long history of traditional use to treat chronic fever, treat old wounds and ulcers, as well as

relieve headaches. On the contrary, the leaves have a bitter taste and have refreshing properties. They have been used as antipyretics and antipyretics and have been found useful in the treatment of conditions such as stomatitis, asthma and typhoid fever.^[34,35] In traditional practices, various parts of the *Ziziphus* plant have been used to their therapeutic properties. The roots are known to be effective in treating imbalances related to pitta dosha, as well as headaches, fevers, ulcers and sores. The bark is used to treat conditions such as boils, diarrhoea, dysentery, gingivitis and ulcers. The seeds have been found useful in the treatment of asthma, burning sensation, cough, diarrhoea, encephalopathy, insomnia, ophthalmopathy, Pitta imbalances and vomiting. The leaves are beneficial for controlling asthma, diarrhoea, leukorrhea (leukorrhea), obesity, stomatitis, syphilitic ulcers, typhoid fever and sores. A mixture of leaves is applied topically to boils, cuts and wounds. The fruits are considered beneficial for pitta imbalances, hyperdipsia, wasting syndrome, vomiting, constipation, flatulence, dyspepsia, nausea, leprosy, thirst, anorexia, fatigue, leukorrhea (leukorrhea), impurities, sores and ulcers.^[36,31,37,38]

What need to do

Like chinese government they have the herbal remedy for to treatment PCOS with Kun-Tai-1A has been successfully demonstrated for the treatment of PCOS, It is one of the certified drug in china processed by Hong Kong Chinese Medicine Service Centre, Ltd. (Hong Kong, China) Still now it is one of the dinating medicine to treat the PCOS. Indian government has to initiate the formulation for treating PCOS from herbal therapy. Since we had the plenty of study for the plant *Ziziphus mauritiana*, But it is stopped only up to the publication, further these study not applied for the formulation. Today awareness also reduced towards using herbal therapy for treating PCOS by using the plant *Ziziphus*. It is an metabolic disorder and the hormonal imbalance can be easily rectified by regular consumption of the plant *Ziziphus* either in the form of decoction, infusion, or powder.

Future world of PCOS without herb

There is no cure for PCOS in today's medical therapy. The cure does not be the cause, means saying about adverse reaction, There will be the lot of fertility centre like grocery shops. The fertile eggs are going to be solded for higher prices. Peoples are more prone to psychological problem. There will be the depletion of generation in near future.

DISCUSSION

Conceiving naturally will give better feel to the couples than getting pregnant through invitro. It is possible only if people adopted to treat herbal therapy particularly *ziziphus mauritiana* for the pcos. Even it is advisable to have as regular supplement of *Ziziphus mauritiana* contains multiple no of nutrients as we can say this plant an hub of nutrients. It is the responsibility of everyone to

make awareness about this wonderful herb to get good health and hormonal balance.

CONCLUSION

Since we are from a heritage of herbs particularly the place like kerala has vast knowledges and sources of herb. But it is highly disappointed to see the increase no of fertility centre. It's time to rebuilt the lifestyle to go for natural rather than processed and preserved. The ministry of health has to take deep concern about giving the balanced diet which contain herbal supplement particularly to balancing the hormone through the proper channel. If it is implemented another few years all IVF centres will be closed. Inorder to get the healthy generation *ziziphus mauritiana* should be the compulsory herbal supplement to eradicate the PCOS and IVF.

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